



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

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July 6, 2010

Darin Cramer, Manager  
Forest Practices Division  
Washington State Department of Natural Resources  
1111 Washington St. SE.  
PO Box 47012  
Olympia, WA 98504-7012

Dear Mr. Cramer:

The Department of Ecology (Ecology) is charged with the responsibility of developing the state water quality standards (Chapter 173-201A WAC). State laws and regulations direct that forest practices be conducted to achieve compliance with the state standards. Ecology was recently asked by managers representing the Washington Department of Natural Resources (DNR) Forest Practices Division and its Olympic Region to clarify our expectations regarding the application of best management practices for the control of turbidity from forest roads.

My staff reports there appears to be fundamental disagreement with some DNR foresters and regional managers about what is required by the state water quality standards. While it is understandable that different staff may reach different conclusions about which best management practices would be appropriate for any particular site, the staff of our agencies should not be aiming for different targets of achievement when selecting those management practices. In response to these issues, Ecology developed the attached white paper discussing the application of the state surface water quality standards for the control of turbidity from forest roads. We have focused the discussion on the key issues that are needed to help guide application of the state turbidity and antidegradation standards in the field.

The application of the turbidity and antidegradation standards is not straightforward. I recognize that our staff will not always agree, but if we are all aiming at the same target such differences should be minor and can be efficiently resolved in the field. Please call my forestry water quality coordinator Mark Hicks at 360/ 407-6477 if you have any questions.

Sincerely,

  
Kelly Susewind, P.E., P.G.  
Water Quality Program Manger

Enclosure





# **Forest Practices Compliance with Water Quality Standards Focus on Roads and Turbidity**

## **Washington Department of Ecology Water Quality Program**

**July 6, 2010**

### **Guidance for Applying Turbidity Criteria to Forestry:**

State laws and regulations direct the application of all BMPs needed to control sediment runoff from roads. State regulations also require that where those BMPs are shown not to be effective in preventing a violation of the water quality standards, they need to be enhanced. DNR authority under forest practices WAC 222-24-010(2) is consistent with this need for roads. If there is no evidence of a failure of the BMPs, it will be assumed they are effective until proved otherwise through the research programs and reviews conducted as part of the Forests and Fish Adaptive Management Program. The presence of a visible plume of sediment extending into the water body is demonstration of the probable lack of appropriate BMPs and highlights a location that is in violation of the state water quality standards. Such situations demand direct corrective action.

There is no specific list of what constitutes the full application of all appropriate BMPs. The decision of what constitutes the required BMPs appropriately occurs in consideration of site conditions. However, there is substantial direction on what factors should be considered in the forest practices rules and Board Manual.

Key considerations to any review of the adequacy of BMPs include:

- Ensure thorough drainage of road surface and associated ditch lines to prevent concentration of runoff or intercepted ground water.
- Use clean and durable road materials where runoff would potentially transport sediment to surface waters.
- Consideration of impermeable surfacing (asphalt or concrete) or active settling basins and control weirs and wattles at sites where road drainage cannot be dissipated broadly to the forest floor with sufficient distance from waters to allow effective settling of suspended sediment.
- Discrete areas at particular risk of sediment delivery should receive heightened controls (for example, a drainage system acceptable on a road going through a broad flat forest may not be acceptable for controlling sediment where the road nears streams and stream crossings.)

## **Background Discussion**

### **Forestry Activities Must Meet the State Water Quality Standards**

No landowner, individually or in combination with other landowners or pollutant sources, may be allowed to cause or contribute to a violation of the state water quality standards. The forest practices rules and authorities cannot be used to knowingly allow conditions to occur at the site level that would contribute to violations of the state water quality standards in any surface waters of the state (this includes all waters and water courses regardless of the presence or absence of fish or perennial flows.)

### **Adaptive Management and Compliance with the State Water Quality Standards**

In the context of the forest practices regulatory system, a failure to meet the state water quality standards represents damage to public resources that must be corrected. The forest practices rules were developed under an assumption that they would meet the state standards. The Forests and Fish Adaptive Management Program was established to validate if the rules *when applied correctly* comply with the forest and fish goal of meeting water quality standards. The state water quality standards also include an allowance for a robust adaptive management approach that tests and updates nonpoint source prescriptions as needed to meet the state standards. Therefore, where the forest practices rules are being fully applied, the activities being conducted in compliance with the rules are presumed to comply with the state water quality standards. Where there is room for professional judgment (discretion) in interpreting what actions meet the forest practice rules, such as with the application of best management practices (BMPs) for the control of sediment runoff from road systems, there is an obligation for landowners and regulatory agency personnel to ensure that those BMPs are being fully used in combinations expected to meet the state water quality standards. When sites and properties are shown to be discharging sediment or violating the water quality standards, the presumption of compliance is overcome and additional site specific adaptive management are necessary. Therefore, for determining appropriate best management practices to control road runoff, the water quality standards' numeric and antidegradation rules are the ultimate standard by which success is measured.

### **Water Quality Criteria and Standards Applicable to Forestry**

It is important to understand the water quality standards in order to apply road BMPs that provide legal coverage (compliance) under the forest practices rules and those standards. This knowledge helps identify what level of sediment discharge would be expected to cause or contribute to a violation of the water quality standards and generate the need for more effective BMPs at any site.

*Technology-based standard.* Regardless of the condition (quality) of the water to which a discharge of sediment is occurring, state law and the water quality standards require the application of all known, available, and reasonable methods of prevention, control, and treatment. Meeting this technology-based standard alone is not sufficient. Compliance also requires meeting the water quality-based antidegradation rules and the numeric turbidity criteria.

*Water Quality Antidegradation Rules.* State antidegradation rules require that water quality not be lowered to any measurable extent (e.g., 0.5 NTU for turbidity) where feasible methods exist to prevent or significantly reduce that effect. Even where measurable lowering of water quality is being prevented, antidegradation rules require that no activity cause or contribute to a violation of the numeric turbidity criteria or harm the existing or designated uses established in the state standards for the specific water bodies.

*Numeric Turbidity Criteria.* The numeric criteria that applies to most of the forest streams of the state is 5 NTU over background when background is less than 50 NTU or 10% over background when above 50

NTU. Unless formally designated by Ecology by permit or order, no zone for dilution is authorized for meeting the turbidity criteria. This means the criteria must be met at the point where the road runoff enters the water body.

In the case of the numeric turbidity criteria, there is understandably some confusion over its application to forestry activities where sediment is contributed through broad areas of overland transport and at innumerable channelized points along the stream.

In applying the technology-based and water quality-based standards on the forest landscape, Ecology in cooperation with DNR established a simplified site-specific performance standard (yardstick) of not having a visible plume of sediment. When this performance standard is not met (i.e., a sediment plume is observed), it is an indication that water standards are not being met and the BMPs used at the site need to be reevaluated. This decision process recognizes:

- The requirement to apply technology-based standards that prevent pollution from entering state waters.
- The water quality antidegradation rules do not allow any measureable lowering of water quality that can be prevented using feasible alternatives.
- The numeric threshold turbidity criteria sets maximum limits on the impact of human activities on turbidity at concentrations below that which would create a visible plume, regardless of the availability or affordability of feasible alternatives.

### **Water Quality Standards must be Applied by State Personnel**

Choosing not to apply the state water quality standards based on personal opinion that the criteria are too stringent is not a legitimate application of agency enforcement discretion. Although a representative of the state has some discretion about how they enforce the criteria, they have no legal discretion to choose not to bring activities into compliance. In other words, they have a legal obligation to identify the water quality standards violation and bring it to the operator's attention, and direct the operator to initiate corrective action that is reasonably expected to achieve compliance with the standards. It is the responsibility of Ecology to keep the state standards current with science and in conformance with state and federal laws. Information supporting any concerns over specific water quality standards should be brought to the attention of the state Department of Ecology.

Ecology is aware of concerns about the application of the state's turbidity criteria. Interested parties need to recognize, however, that no information has been identified that would clearly support any substantial relaxation of the numeric criteria. Scientific information to this effect would need to demonstrate that any such relaxation of the standards, when applied, continues to maintain and protect the aquatic life and other designated in-stream uses of the watershed. A full review of the available science, and consideration for how to apply that science in the context of water quality criteria would, of course, need to occur before any decision could be made on what, if any, changes should be made. Ecology will be discussing turbidity as a potential topic for the next federally required Triennial Review of the standards.

At this time, the state of Oregon is going through a review of its turbidity criteria. While Oregon's existing standards are somewhat different from those in the state of Washington their efforts will likely inform the Washington process. Oregon has produced a technical review document, released a call for further data, and has made available the results of an independent science panel review on their initial technical document. All of this information may assist interested or concerned individuals to better understand the weight of biological evidence and implementation issues relating a rule revision of the state turbidity criteria. Persons interested in finding out more about the Oregon review are encouraged to go to their website at <http://www.deq.state.or.us/wq/standards/turbidity.htm>.

## Appendix

### Examples of Applying Turbidity Criteria to Discharges adapted from Ecology's Construction Stormwater General Permit Implementation Guidance

Photo #: 1

Description: Stormwater discharge from construction site ditch into stream.

Background is 8.8 NTU.  
Discharge is 631 NTU.

Discharge is  $> 5$  NTU above background when background is  $< 50$  NTU. Therefore, this discharge is above WA State Surface Water Quality NTU criteria.

White arrows indicate specific locations to collect background and



Photo #: 2

Description: Stormwater discharge from nearby Construction Site into ditch and then a stream via road culvert.

Background is 11 NTU.  
Discharge is 743 NTU.

Discharge is  $> 5$  NTU above background when background is  $< 50$  NTU. Therefore, this discharge is above WA State Surface Water Quality NTU criteria.

White arrows indicate specific locations to

